

WHAT IS CLAIMED IS:

1. A method of producing a photovoltaic device, comprising steps of:
 - 1 forming a zinc oxide layer on a substrate at least by electrolytic deposition;
 - 2 subjecting the zinc oxide layer to any one treatment selected from the group consisting of plasma treatment with a rare gas or nitrogen gas, ion irradiation, light irradiation and electromagnetic irradiation; and
 - 3 forming on the zinc oxide layer a semiconductor layer comprising a non-single crystal silicon material containing hydrogen and having at least one p-i-n junction.
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2. The method of producing a photovoltaic device according to claim 1, wherein the treatment is a rare gas plasma treatment using at least one rare gas selected from the group consisting of He, Ne, Ar, Kr and Xe.
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3. The method of producing a photovoltaic device according to claim 1, wherein before forming the zinc oxide layer, another zinc oxide layer is formed on the substrate by sputtering and used as an underlying layer.
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4. The method of producing a photovoltaic device according to claim 1, wherein the average thickness of the zinc oxide layer is from 10 nm to 5 μ m inclusive.

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5. The method of producing a photovoltaic device according to claim 1, wherein the zinc oxide layer transmits 50% or more of light with a wavelength of 800 nm.

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6. The method of producing a photovoltaic device according to claim 1, wherein the zinc oxide layer has a resistivity lower than that of a p- or n-type semiconductor layer provided adjacent to the zinc oxide layer.

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7. The method of producing a photovoltaic device according to claim 1, wherein an adsorption preventive layer is provided between the zinc oxide layer and a p- or n-type semiconductor layer provided adjacent to the zinc oxide layer.

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